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In the Drawings:

None

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This amendment is in response to the Examiner's Office Action dated 1/26/2005. Applicants wish to note that the office action summary erroneously states that the office action is a final office action, but the detailed response of 1/26/2005 fails to address the finality of the rejection. Applicants have also checked USPTO's PAIR system where it appears to be correctly recorded as a non-final office action. Hence, with respect to the current response, applicants have treated the office action of 1/26/2005 as a non-final office action.

Furthermore, applicants are appreciative for the recognized allowable subject matter. This amendment should obviate outstanding issues and make the remaining claims allowable. Reconsideration of this application is respectfully requested in view of the foregoing amendment and the remarks that follow.

STATUS OF CLAIMS

Claims 1-25 are pending.

Claims 5-7 and 12-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 1-4 and 8-11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bi et al. (EP 1009107) in view of Kanai (USP 5,898,682), and further in view of applicants' admitted prior art (AAPA).

Claims 15-25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bi et al. in view of Kanai.

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Claims 17, 24 and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bi et al. as applied to claims 15, 16 and 18-23 above, and further in view of AAPA.

OVERVIEW OF CLAIMED INVENTION

The present invention provides an error rate control apparatus that is used in conjunction with a communications system that maps a data signal and a control signal to a physical channel, wherein the apparatus comprises a control signal error rate computation unit to compute the error rate of the control signal and a power variable unit to transmit after changing the transmission power of the control signal based on the value of the error rate.

The present invention also provides for an error rate control method for use in a communications system mapping a data signal and a control signal to a physical channel, wherein the method comprises the steps of: computing the error rate of the control signal and transmitting after changing the transmission power of the control signal based on the value of the error rate.

According to the present invention, the power of the control signal required in establishing the communications is controlled based on the computed error rate of the control signal. Since the power of the data signal, etc. is maintained as is, the wasteful power consumption can be reduced when the data signal length is long and the relative length of the control signal is short. That is, when an instruction is issued using a transmission power control request to the transmitter to increase the transmission power to correctly receive the control signal (that is, when an error rate is to be reduced by raising the transmission power), only the power for the control signal is to be increased rather than to increase the power of the all signals

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so that wasteful power can be reduced, power consumption can be reduced, and a control signal can be correctly received.

In the Claims

Claims 1, 8, 15, 16, 18-20, and 22-23 have been amended to clarify the present invention without adding new matter. Applicants wish to note that the amendment merely clarifies that the control signal is used in receiving and processing data signals. Claims 4 and 11 have been cancelled via the current amendment. Also, claims 5-7 and 12-14 have been amended to correct dependences.

REJECTIONS UNDER 35 U.S.C. § 103(a)

Claims 1-4 and 8-11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bi et al. (EP 1009107) in view of Kanai (USP 5,898,682), and further in view of applicants' admitted prior art (AAPA). Claims 15-25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bi et al. in view of Kanai. Claims 17, 24 and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bi et al. as applied to claims 15, 16 and 18-23 above, and further in view of AAPA. Rejections with respect to claims 4 and 11 are moot in view their cancellation via the current amendment. To be properly rejected under 35 U.S.C. § 103(a), each and every element of the claims must be addressed through known prior art or be recognized as an obvious variation thereof. Applicants contend that the cited combinations of the Bi, Kanai, and AAPA fail to provide many of the limitations of the rejected claims.

Bi et al. provides separate power control commands or information for the forward voice and forward data channels without using additional bandwidth or demanding additional pilot power provided from the mobile to the base station. Bi et al. is representative of the prior art

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wherein when a control signal or transport format combination indicator (TCFI) is mistakenly received (i.e., due to an error), transmission power is increased for all data, thereby consuming unnecessary transmission power. The present invention, on the other hand, robustly computes the error rate of a control signal and varies the transmission power of just the control signal, a limitation neither taught nor suggested by the art of record.

With respect to independent claims 1 and 8, the examiner on page 2 of the office action contends that the Bi et al. reference, in column 1, lines 30-51, teaches a control signal error rate computation unit computing an error rate of control signal. However, a closer reading of the citations merely suggests that "based on the received power or the error rates, the mobile station instructs the base station 10 to either increase or decrease the amount of power used for transmission over the forward voice and/or data channels." Column 2, lines 13-26 of the Bi et al. reference further reiterates the fact that the error rates are associated with the "voice and data signals." The examiner is respectfully reminded that in applicants' claims 1 and 8, the control signal error rate computation unit computes an error rate of the control signal, and not the data signal (as in the Bi et al. reference).

Also, with respect to independent claims 1 and 8, the examiner states on pages 2-3 of the office action that the Kanai et al. reference teaches "transmitting the control signal after changing transmission power of the control signal based on the value of the error rate". Specifically, the examiner cites column 7, lines 20-24 and column 9, lines 46-62 of the Kanai et al. reference as remedying such a limitation. A closer reading of the citations and the entire Kanai et al. reference merely suggests that "the radio channel control section 370 requests the pilot channel transmit section 350 to modify the transmission power level of the pilot signal to a

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higher or a lower level.” In column 6, line 64-column 7, line 5 of the Kanai et al. reference, the radio channel control section 370’s functionality is defined as follows: “the radio channel control section 370 receives the uplink quality signal and the downlink quality signal from the communication channel transmit/receive section 330 and calculates, for each of the uplink and the downlink signals, the ratio of the measured values exceeding an average communication quality, a median, or a required quality to decide or set the ratio as each of the uplink communication quality and the downlink communication quality of this base station.”

Conspicuously absent in the citations is any functionality regarding computing an error rate of a control signal. Also conspicuously absent in any citations is a teaching for transmitting the control signal after changing transmission power of the control signal based on the computed error rate. The examiner is respectfully reminded that changing the transmission power of the control signal based on such a computation is not the same as changing the transmission power of a data signal.

With respect to independent claims 15, 16, 18-23, the examiner states on page 4 of the office action of 01/26/2005 that the Kanai reference in column 7, lines 15-24, teaches the limitation of controlling the transmission power of the control signal based on an error condition of the received control signal. However, in column 7, Kanai et al. merely teach the modification of the power level associated with a pilot signal to a higher or lower level. As controlling the transmission power of a pilot signal is not the same as separately (i.e., separate from the power of the data signal) controlling the transmission power of a control signal, applicants contend that the Kanai et al. reference fails to teach or suggest controlling transmission power of a control

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signal separate from the transmission power of a data signal based on an error condition (such as a computer error rate of the control signal).

The above-mentioned arguments for independent claims 1, 8, 15, 16, and 18-23 substantially apply to dependent claims 2-3, 9-10, 17, and 24-25 as they inherit all the limitations of the claim from which they depend.

Since the combination of the cited combinations of the Bi, Kanai, and AAPA fail to provide many of the limitations of the rejected claims, applicants respectfully request the examiner to withdraw the rejections with respect to claims 1-3, 8-10, and 15-25.

SUMMARY

As has been detailed above, none of the references, cited or applied, provide for the specific claimed details of applicant's presently claimed invention, nor renders them obvious. It is believed that this case is in condition for allowance and reconsideration thereof and early issuance is respectfully requested.

This amendment is being filed with a petition for extension of time. The Commissioner is hereby authorized to charge the petition fee, as well as any deficiencies in the fees provided to Deposit Account No. 50-1290.

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If it is felt that an interview would expedite prosecution of this application, please do not
hesitate to contact applicant's representative at the below number.

Respectfully submitted,



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